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Community indicators: a framework for observing and supporting community activity on Cloudworks

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Community Indicators: A framework for observing and supporting community activity on Cloudworks

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Abstract

Cloudworks (Cloudworks.ac.uk) is a social networking site designed for sharing, finding and discussing learning and teaching ideas and experiences. Design and development of the site has been based on an iterative analysis, development and implementation approach, underpinned by ongoing research and evaluation. To this end, we have been seeking to establish strategies to enable us to systematically position transactions and emerging patterns of activity on the site so that we can more reliably use the empirical evidence we have gathered (Galley, 2009a, Galley 2009b, Alevizou et al., 2010a, Conole et al, 2010). In this paper we will introduce a framework we have developed for observing and supporting community development on the site. In building our framework we have used empirical evidence gathered from the site, then related it to the literature from a range of disciplines concerned with professional and learning communities. We link research relating to distance learning communities with studies into Computer Mediated Communication (CMC), self-organising communities on the web, and wider research about the nature of learning organisations and continuous professional development. We argue that this framework can be used to capture the development of productive communities in the space (i.e. how far cohesive, productive groups can be said to be emerging or not) and also help focus future development of the platform, and provide guidelines for community support.

Keywords

Cloudworks; social networking; Web 2.0; social and participatory web practices; frameworks; Communities of Practice; Communities of Inquiry; Community Indicators

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Introduction

Cloudworks (www.cloudworks.ac.uk) is a professional social network for education professionals, which has been developed as part of the Open University Learning Design Initiative (www.open.ac.uk/blogs/OULDI/) and is informed by principles of open education and scholarship. The overarching belief behind development of the site is that the key challenge in encouraging more innovative learning design is getting teachers to openly share, discuss and develop designs and ideas.

> "the key tenet of open education is that education can be improved by making educational assets visible and accessible and by harnessing the collective wisdom of a community of practice and reflection" (Iiyosh and Kumar, 2008, p.10)

Cloudworks aims to support open participatory and productive practices (peer critiquing, sharing, user-generated content, aggregation and personalisation) within an educational context, and promote creative and reflective professional practice and development. Briefly, the core objects in the site are called '*Clouds*' and a Cloud could be a question, resource, discussion, paper or learning design etc. Clouds can be grouped together into a '*Cloudscape*' usually around a theme, community or conference. Individual Clouds can be pulled into any number of Cloudscapes enabling cross Cloudscape interaction and activity.

In this paper we will propose a Community Indicators Framework (CIF) for observing and supporting the communities that use this space. We argue that existing frameworks designed to examine and support activity in primarily closed online communities, whilst relevant, do not sufficiently enable us to describe and explain the activity patterns and behaviours we are seeing in this open space. We propose that the CIF can be used to observe and capture the development of productive open communities (i.e. to explore how far cohesive, productive groups can be said to be emerging or not) and also help focus future development of the platform, and provide guidelines for community support.

Central to the development of this framework has been the collation of empirical evidence gathered from the site, triangulated with the literature. We hope to have captured and applied the primary themes, understandings and experience of professional and learning communities from across the disciplines. We link research relating to distance learning communities with studies into Computer Mediated Communication (CMC), self-organising communities on the web, and wider research about the nature of learning organisations and continuous professional development, and sociological theories of group identity, performance, cohesion and persistence.

Core patterns of activity

Early observations of activity on the site indicated that the open nature of the space, combined with its object-centred structure, was leading to unanticipated activity patterns and uses. In particular, the site's inter-connectivity with other

channels of web-communication (particularly Twitter and blogs) seemed to be facilitating serendipity and association that was creating new opportunities for both self-oriented and collective engagement. This became more evident as functionality was developed to complement blended communicative practices in residential events (such as workshops, seminars and conferences). Since these initial observations, we have been working to establish a framework which will enable us to more systematically position transactions and emerging patterns of activity so that we can more reliably use the empirical evidence that we are gathering to evaluate the site and its functionality, and promote sustained and productive participation (Galley, 2009a, Galley 2009b, Alevizou et al., 2010a, Conole et al, 2010).

The table below (from Alevizou et al, forthcoming) summarises these observed patterns of activity, pointing to types of uses as they evolved over time and through the added functionalities.

Core types of activity	Evolutionary trajectories in use/activity
Events (supported and serendipitous) Workshops Conferences	Increased number of requests to the Cloudworks team for setting up pre-designed spaces for events (from Summer 2009)
Virtual seminars/conventions	A richer record of events in relation to a) embedding chapters and presentations; b) audience responses and dialogic interchanges (back-channels)
	Increased number of users setting up ad-hoc spaces for back-channel activities (from Autumn 2009)
Audience/interest group targeted Cloudscapes for specific research idea/project or teaching topics & pedagogies	Increased numbers of users outside of the team contributing to the site (71% of Cloudscapes, 79.2% of Clouds and 89.7% of comments in October 2010 were created by users other than the Cloudworks team)
	Aggregation of topics with more followers; increased personalisation and projected topic-oriented sociality (from Autumn 2009)
Topic/Question oriented sociality	Essentially dialogic in nature – Clouds or Cloudscapes which raise questions and issues, and provide a shared space for users to discuss.
	A new pattern of activity sparking 'flash debates' is evident from Summer 2009.
	Provocative questions and polling style activities – often transferred from the blogs and twitter – generate rich and immediate discussions
	Aggregation - a record and focal point of discussions in a public space
'Open Research Reviews'	Researchers start posing their research questions and aggregating relevant resources, but also inviting others to contribute and discuss (Autumn, 2009)
Closed community activity in open spaces	Examples of emerging use of the open Cloudworks space for typically closed community activity such as agreeing agenda items and schedules for meetings, development of community targets etc. (Summer 2010)

Table 1: Core types of activity against evolutionary trajectories in use (Alevizou et al, 2010)

Methodology

Cloudworks has been developed using a Design-Based-Research approach (DBR):

> "a systematic, but flexible methodology aimed to improve educational practice through iterative analysis design, development and implementation, based on collaboration between researchers and practitioners in real-world settings, and leading to contextually-sensitive design principles and theories" (Wang and Hannafin, 2005, p. 5-6)

Development of the site began with a clear statement of the problem we were trying to address, and a proposed solution which drew on ideas of mediation and activity theory for designing object oriented sociality (see Conole and Culver, 2009; Bouman et al, 2007; Engeström, 2005). We then began an iterative cycle of development and evaluation. We have applied a broad range of theoretical perspectives to enable us to position some emerging activities - such as boundary crossing between communities, and open, informal, professional discussion between different stakeholders (policy makers, researchers, teachers, learners, etc.) - and to frame some of the key challenges, such as building sustainability and 'critical mass'. Furthermore, we have attempted to develop a coherent set of conceptual frameworks and approaches which we hope can be applied more broadly, such as the framework described in this paper.

Our approach to data collection and analysis could be broadly described as discourse-centred online ethnography (Androutsopoulos, 2008, p.1); "*a combination of systematic observation of online activities and interviews with online actors*". This approach encompasses and extends Herring's Computer-Mediated Discourse Analysis framework (Herring, 2004), using ethnographic insights "*as a backdrop to the selection, analysis, and interpretation of log data*". There are broadly three dimensions to this kind of research:

- o Data analysis
- o Observation
- o Interviews and surveys

Data analysis

In order to establish a starting point for analysis, and to contextualise isolated incidences of activity, a range of standard statistics has been routinely gathered from the site, along with an administrative '*Cloudstream*' which lists all activity chronologically including when new users register with the site and when users choose to 'follow' or 'favourite' Clouds, Cloudscapes or other people. We also capture on a monthly basis the number of new users, Clouds, Cloudscapes, comments, links, extra content additions, embeds, unique visits, unique visitors, page views and distinct logged in users each month.

Observation

We have collected examples of discourse from particularly successful, and less successful, Cloudworks communities to enable comparisons which may indicate which behaviours are key to a developing Cloudworks community. As we have begun to analyse and explain behaviour on the site, Goffman's notions 'facework' and 'ritual performance'(Goffman, 1955) - used to analyse social behaviour in public spaces and widely deployed in the fields of computer meditated communication (CMC) - have been especially useful for exploring the nature of conversational interaction, the networks of feedback and the sharing of guided exploration (see also Alevizou et al., 2010a).

We have found it helpful to consider social interactions as two sub-types which we have labelled *discursive* (affirmations, welcome notes, supportive interchanges, humour and wordplays) and *deliberative* (instigating and engaging in debates, asking questions and making provoking statements). In addition to the *social* interaction type we have identified two further types commonly seen on the site: *informational* (sharing of resources, links, annotations of presentations, live-blogging etc) and *practical* which provides a category for interchanges relating to professional practice and experience. The practical type can be seen as falling into two further sub-types *sharing* (instigating or engaging in the sharing of practice and experience) and *productive* (instigating or engaging in the creation of a shared artefact i.e. meeting agenda, definition, design or proposal). These categories have been informed by early coding schemes which have been used extensively in the field of Computer-Mediated Communication (CMC) such as those developed by Henri (1992), Garrison et al. (2000) and Gunawadena, Lowe, and Anderson (1997), and adapted to allow us to specifically track the progression of interactions from social to productive. In using these classifications, we remain mindful that it would not be sufficient to focus on just the content of discussion, and that it is important to also take account of the broader context in which discussions are taking place.

Surveys and interviews

Finally, we have explored participants' experience through surveys and semi-structured interviews. Androutsopoulos calls this dimension "*contact with actors*". Surveys have been sent out to more than 900 users, and we have conducted over 50 semi-structured interviews. The surveys have been sent to random samples of users, however we have followed Androutsopoulos's suggestion that interviewees are chosen based on prior observation and textual analysis rather than randomly:

> "The selection of interviewees should offer insights into a range of perspectives within a field. It is therefore crucial to contact interviewees who exemplify different participation formats, e.g. amateur and professional ones, as identified by observation." (Androutsopoulos, 2008, p.8)

Notions of community

Over the last 20 years, definitions of community have moved away from a focus on physical factors or location, to a focus on relational indicators, which increasingly include reference to group self-representation and self-awareness, and point to co-operative or collaborative behaviours:

> "[Community does not] imply necessarily co-presence, a well-defined identifiable group, or socially visible boundaries. It does imply participation in an activity system about which participants share understandings concerning what they are doing and what that means in their lives and for their communities" (Lave and Wenger, 1991, p. 98)

Participatory web processes and practices have more recently opened up new spaces for, and styles of, learning - social spaces which enable transient, collaborative, knowledge building communities, and the development of shared assets such as interests, goals, content and ideas (Alexander, 2008; Anderson, 2007; Downes, 2005; Siemens, 2009; Jenkins, 2006; Bruns, 2008; Alevizou et al, 2010a). However, much of the reported research into community learning and scholarship activity on the web remains centred on fairly well-defined groups in predominantly 'closed' settings. The approaches used to describe, observe and support these closed communities, while relevant, seem inadequate in helping us to describe and explain the nature of 'open' practices, where participants connect and interact with multiple audiences, across multiple platforms, moving beyond and between established and familiar groups to more loosely connected co-operative and collaborative relationships.

Loosely tied and open groups are commonly differentiated from more bounded, closed communities, and several types of more loosely connected and transient communities have been identified. Wenger (1998) and Brown and Duguid (2001) have identified 'Networks of Practice', Wittel (2001) 'network sociality', Garrison et al. 'Communities of Inquiry' (2000), and Fischer (2002) 'Communities of Interest' etc. In a related paper (Conole et al., 2010) we consider the degree to which some of these frameworks are evident in patterns of user behaviour on the Cloudworks site. Wenger (1998) argues that more bounded Communities of Practice (CoPs) are cohesive, and share historical processes developed from strong ties, whereas networks are more fragile and tend to focus on relational interaction. Fischer (2002) differentiates between the two in terms of the mix of participants, and defines Communities of Practice as *homogeneous* (composed of similar constituents) and Communities of Interest as *heterogeneous* (composed of constituents that are unrelated or unlike each other). He argues that an open, heterogeneous community, although more transient, *"has great potential to be more innovative and more transforming than a single CoP if it can exploit the "symmetry of ignorance" as a source of collective creativity"* (Fischer, 2002, p.4). Similarly, Gratton (2007), in her study of productive and innovative communities within large global organisations, agrees that the depth of the relationships, and the open/closed nature of the community, will impact on the patterns and types of activity that happens within it,

and that interactions *across* established groups between acquaintances and associates are more likely to engender innovation and transformation than interactions within close groups, and that closed groups are more suited to supporting the application and exploitation of existing, or known, practices and ideas.

> "working cooperatively in well established teams is important for the exchange of knowledge and for understanding what others know. However... innovation... arises when new ideas, from people in different groups and communities, are brought together"(Gratton, 2007, p. 3)

We would expect open, participatory web spaces such as Cloudworks to support all types of activity, but predominantly those that could be described as innovative, creative and explorative, as pre-existing CoPs and individuals share their ideas and experience across traditional boundaries. Moreover, continuous shifts in the make up of the groups and the depth of relationships between participants, will lead to shifts in the nature of activity we are likely to observe. It is this type of dynamic, evolving and potentially transformative community that is of interest to the developers of Cloudworks.

The Community Indicators Framework

Our Community Indicators Framework (CIF) identifies the factors which we argue will enable us to better monitor, observe and support the transient but repeated and iterative collaborative activity that happens in groups within, across and between groups from more established CoPs. The CIF is built around four key aspects of community experience: *participation* – the ways in which individuals engage in activity; *cohesion* – the ties between individuals and the community as a whole; *identity* – how individuals perceive the community and their place within it; and *creative capability* – the ability of the community to create shared artefacts, and shared knowledge and understanding. Each of these aspects is interrelated and the whole reflects the multifaceted complexity of what we experience as community. We will argue that these aspects have a multiplicative effect on each other, in that the absence of one is likely to significantly impact on the presence of the others. In this section we will describe each of the indicators in turn, illustrate how they can be observed in action in the site, and how they map to the literature.
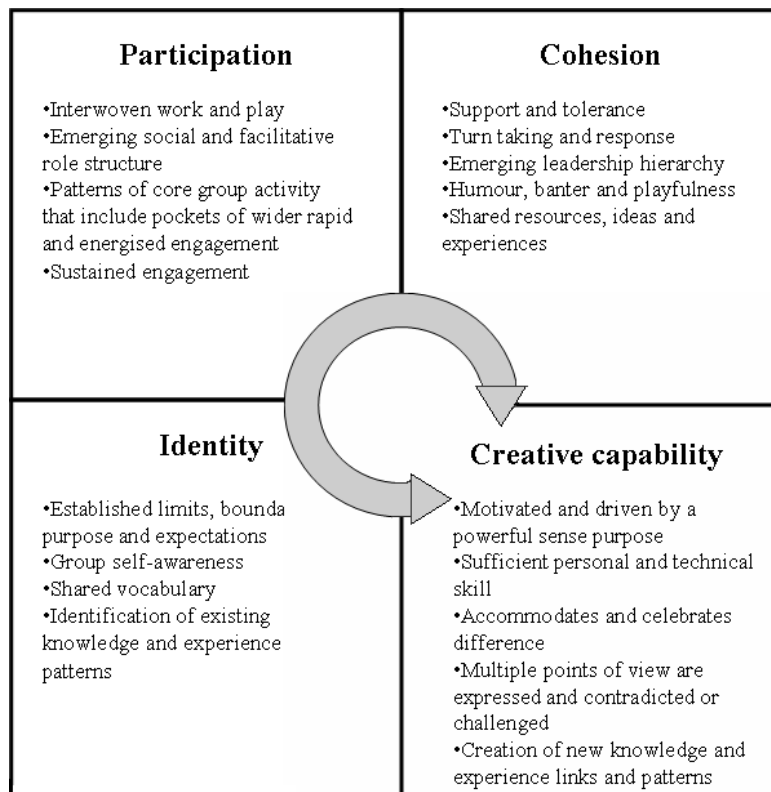
Fig 1: Community Indicators Framework

Participation

Participation, and patterns of participation, are themes that re-occur across the literature. They are commonly discussed in relation to the notion that community comes into existence through social and work activity sustained over time (Rheingold, 1993, p5).

In Cloudworks, frequency of activity can be seen as a useful if crude indicator of a successful community. In addition, the number of active participants in a Cloud discussion begins to indicate how well the discussion meets the needs or interests of a group, and the number of messages per active participant can be used to broadly indicate how engaged that participant is. We would also expect a successful community to continue its activity until the 'problem' has been solved, or the reason for coming together has ended. However, these indicators in themselves do not reliably indicate depth or richness of participation and engagement. The activity distribution chart below compares the activity of two Clouds. Both Clouds have been set up to support time-limited discussions between members of pre-existing CoPs. As can be seen, the Clouds are similar in terms of the number of participants, comments, individual days of activity and total number of unique page views in the active period. However, Cloud 1[2] was perceived by participants to be collaborative and engaging and Cloud 2[3] was not.

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[2] http://cloudworks.ac.uk/cloud/view/4855
[3] http://cloudworks.ac.uk/cloud/view/5279

	Number of active participants	Number of comments	Number of days activity	Total number of unique page views in active period
Cloud 1	7	11	7	176
Cloud 2	10	11	9	116

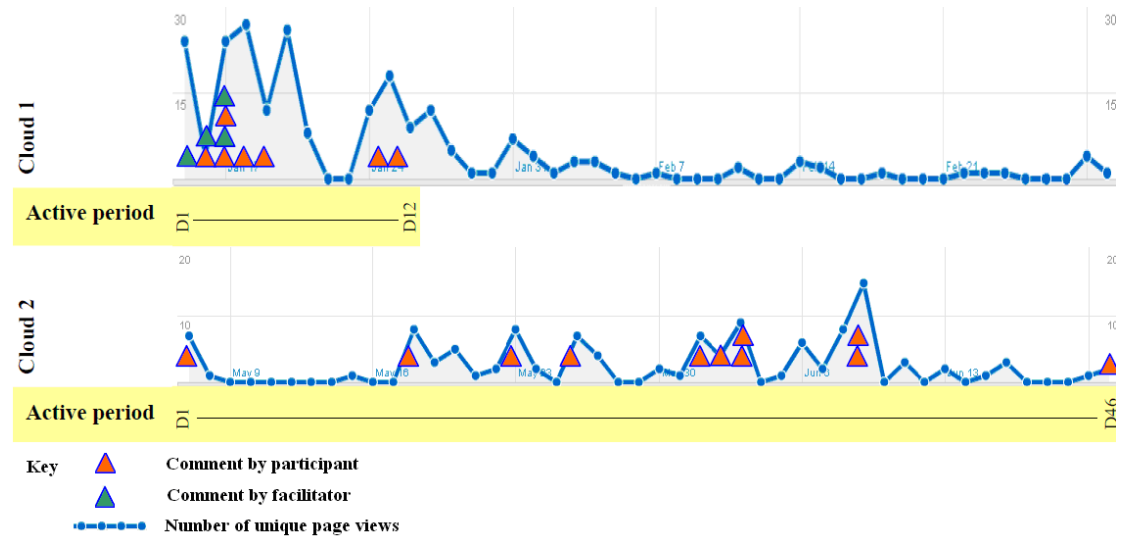**Table 2: Comparison of basic data Cloud 1 and 2**

Fig 2: Activity distribution chart comparing the activity of Clouds 1 and 2

The activity distribution chart alone reveals some significant differences between the Clouds. The first Cloud shows a pattern of short lived and rapid discussion, supported at first by a community facilitator and with significant interest shown by a number of non-active participants, whereas the second Cloud shows activity dispersed across a longer activity period, with no emerging facilitator and little evidence of a non-active participatory group. A closer look at the content of the discussion shows that whilst both groups are sharing experiences and ideas from their own practice as requested by the Cloud owner, there are a significant number of enquiring and supportive exchanges in Cloud 1:

"We'd welcome any comments or observations..."

"Could you identify what this means...?"

"Welcome to the cloud, and thanks for the question"

"Hi there - this is a good set of resources"

"Just to echo what X said..."

"Some interesting points so far - but I'm wondering if there is anyone out there who represents alternative e-portfolio providers/users?"

Whereas participants in Cloud 2 have made only standalone statements, devoid of any social interaction between participants.

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Fayard and DeSanctis (2005) report how a loose collection of professionals can develop a pattern of conversation around discussion points, that allows for the development of sustainable and meaningful online interaction in a way which seems to mirror the phases of offline small group development such as those suggested by Tuckman (1965): forming, storming, norming and performing. In the Cloudworks space, it has been observed that while groups are first forming around a discussion, idea or question, it seems to be particularly important for someone to adopt a 'connector' or social facilitation role (Galley et al, 2010b and Alevizou et al., 2010b). We have observed that the early appearance of one or more participants performing positive social behaviours will impact on the longer-term development of a supportive culture for the life of the community. This supportive activity might include offering guidance, prompting through questions, reassurance, thanks, congratulation, welcome and humour:

> "Discussions facilitated by active moderators, as well as core participants from associated research and practice communities...seem to have better prospects in promoting sustained interactions and dialogue...a prolific subscriber often acts as an 'ambassador', promoting discussions and content posted on the site, across other communication channels" (Alevizou et al. 2010b, p.31)

The performance of activities that support stages of group development seem to be important in ensuring that the needs of individuals within the community are met, and that repeated activity is stimulated and refreshed. Wellman and Gulia (1999, p.172) argue that these behaviours - "*emotional and peer-group support*" and other types of social interactions – will, and should, appear more often in online community discussions than information-orientated transactions. This aligns with the findings of Kanuka and Anderson's 1998 study where they found that social-cognitive processes among participants in an online forum included significant time engaged in social interchange (1998, p. 57). They further note that in online learning communities, interpersonal or social interaction between learners and the instructor can be seen to contribute both to participant satisfaction and frequency of interaction.

The role of key community members in supporting and promoting participation is another that emerges strongly from the literature. Redecker (2009), drawing on Preece et al. (2004), Brown (2001) and others, identifies a number of hierarchical roles that can be seen to emerge from and impact on a community's development. Nichani (2001) proposes that although most participants in online discussions could be described as 'trend-followers', some emerge as 'trend-setters' and that these people have a significant impact on the development of community. He identifies three types of trendsetters: *connectors*, *mavens* and *salesmen*. Connectors are very sociable and attentive. Mavens are the information experts who collect information and tell others about it. Salesmen are persuaders; they are inclined to reach out to the unconvinced and persuade them to join the community.

To summarise, in relation to the ways in which individuals participate within a community, a successful community will:

- o move between social and productive or 'working' activity

- o develop or utilise a social structure where some participants will adopt a series of social and facilitative roles

- o demonstrate patterns of activity that include pockets of rapid and energised engagement

- o be sustained long enough for the reason for coming together to be completed or resolved

Identity

Central to the notion of community are issues of membership and exclusion (Erickson 1997) – some people are in and others are out. Participants within Cloudworks come to the site through a range of dispersed communicative spaces (blogs, institutional sites, public and private mailing lists), and interact in several physical and virtual spaces (e.g. Twitter, Facebook, workshops and conferences) They can be seen to position and contextualise themselves as professional *individuals* with the use of 'I' and 'You':

> "One of the principles you identified was..."

> "Let me explain by using the example..."

> "I use both textual and visual materials for my face to face tutorials"

However, in the more successful Clouds participants will also establish links and connections between each other and begin to express group self-awareness by their use of language that suggests an awareness 'Us' and 'Them'.

The exchange of comments in the "*Integrating multimedia work into assessment*[4]" Cloud reveals a rich multiplicity of experience and perspectives and yet a consensus was reached on most of the tricky issues. The language and tone used combined humour and banter with a shared vocabulary to express viewpoints, performing respective identities as teachers and researchers in a distance learning institution. Most participants made reference to each other's point of view, and links were offered to back up experience from literature and practice:

> "So part of the teaching ...is the choice and execution of diagrams that fit the rules/guidelines ...I assume the framework you mention does something similar"

> "While we may not be as technical as what I am reading on this post.....the goal is similar."

> "We need to be creating teaching and assessment stuff that is consistent with 'practice' in 'real life'"

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[4] http://cloudworks.ac.uk/cloud/view/2631

> "I feel we might have a lot to gain not only by retaining some flexibility but also by articulating this fuzzyness quite clearly to students"

Herring (1994) agrees that group identity can be demonstrated in participants' references to the group as a group, particularly in statements like "*'we do things this way here"* (implying an awareness that they might be done differently elsewhere). Further, Baym (1998, p. 62) argues that the emergence of group identity can be seen in the language that participants use as they *"create and codify group-specific meanings, socially negotiate group-specific identities, form relationships . . . and create norms that serve to organize interaction and to maintain desirable social climates".* In 2003 (p.1016), she identified four types of *"consistent and distinctive language practices"* which she believes indicate the emergence of a coherent online community. These are: group specific vocabulary; forms of non-verbal communication; genres; and humour.

An example of this in the site can be found in the Clouds associated with the "*Literature Review - The positioning of educational technologists in enhancing the student experience*[5]" Cloudscape, where during a discussion about the role of educational technologists, there were a number of attempts to validate and indeed reposition the community. Note also the use of emoticons and inverted commas in place of physical, non-verbal cues:

> "I'm sure most people here will be familiar with that work..."

> ""Paraprofessionals" – thanks I just learned another great word :-)"

> "Could XX's 'paraprofessional' (a new concept for me too) be viewed as a new assertive attempt at 'positioning'?"

The notion of membership, belonging and connection are central to McMillan and Chavis's (1986) four-dimensional model of community. Their focus is on the identification of the factors that lead to a '*sense of community'*. They argue that community members need to have a feeling for the boundaries or limits of the community, and that these boundaries will enable a sense of belonging and safety. They argue that it is this feeling of belonging that encourages people to self-invest in the community, which has the consequence of giving the individual the sense of having earned their place in the community (McMillan and Chavis, 1986, p.15). In an interview, one regular Cloudworks participant pointed to the way that her patterns of activity changed over time, and how key to this was an understanding of expected behaviours and cultural 'norms' on the site:

> "I began browsing and reading others' comments, and after a while I started adding links, and new content and after a while, when I was quite sure about norms - general norms - of the social network I started to add comments or even to create a new cloud... I am fully immersed in this social network. I love particularly the fact that it focuses on content, on debates, on topics, and not on people... I think it could be such a gem for [*research*

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[5] http://cloudworks.ac.uk/cloudscape/view/1872

students] to...discuss a research theme, research method, problems and because I think, I feel a strong sense of community of practice behind the social network."

To summarise, a community will express its own identity by:

- o establishing the limits, boundaries purpose and expectations of the group

- o using language which refers to the group as a group

- o building or using a shared vocabulary

- o pointing to shared experiences or knowledge

Cohesion

The cohesion indicator relates to the ways people demonstrate and perceive the ties between each other as they operate in a community. In Cloudworks we can see that the most successful Clouds and Cloudscapes have been ones where participants demonstrated interest in each other's views and used language and tone that is informal but polite, curious, friendly and open. Indeed we noticed that very formalised, academic language, and particularly bold statements voiced in the third-person – although familiar to the professional groups that use the space - tended to significantly inhibit discussions (Galley et al, 2010). We can see ways in which participants lever sociality and mutuality through their dialogue, for examples through demonstrations of support, encouragement, tolerance and reciprocity:

"Brilliant thanks for this [@name] - I think this is a really important topic which all institutions need to be considering".

"Sounds really interesting - have added the wiki as a link. Seems like a lot of people are beginning to think about this…"

"I know I know it's incredible huh! Lots of good resources and links being added."

"The results are really interesting. XX is planning to do a more reflective blog on this…"

Alongside a friendly, enquiring, informality of tone, we have also observed that the most productive Clouds and Cloudscapes are often characterised by a light-hearted playfulness, banter and incidences of humour.

"Great thanks XX – looks like being a great session! Could start the trend of people wearing silly wigs ;-)"

"Am sneaking a look at the live stream for a bit, everyone looks very serious! Specially X!!! :-)"

"For podcats please read podcast. Any suggestions what a podcat might look like?"

Baym (1995) proposes that in online communities, group identity and solidarity are often "*negotiated, in part, through humour*". She suggests that humour can act as a way of *"expressing serious intent and of conveying serious information without appearing to do so"* (see also Mulkay, 1988, p. 69), thus enabling participants to share complex and 'high risk', innovative ideas or experience without appearing boastful or immodest to new acquaintances, or more experienced colleagues. Wittel

(2001) goes further and argues that inherent in the sort of loosely tied groups we focus on here is a style of sociality "*characterised not by a separation but by a combination of work and play*" Wittel (2001, p. 51)).

The process of sharing is also seen as important in building and strengthening the psychological ties within the group. McMillan and Chavis (1986) develop the concept of a "*psychological sense of community*" and McMillan in particular discusses the "spirit" of community (McMillan 1996, p. 315), and suggests that sharing and self-disclosure takes the form of trade in communities, and should progress from safe to risky. This concept is applied to online community development by Salmon (2000) when she proposes that e-moderators should provide opportunities and support for participants to begin to share their ideas and experiences, and encourage innovative ideas and risk taking. Similarly, Clifton (1999) highlights the importance of social trust in community development – trust in other people - and argues that "*when people do not trust each other, and when they do not share norms, obligations, and expectations, ...the community is not likely to develop, and the self-interest of people in their status is likely to predominate*" (Clifton, 1999, p. 114).

Gratton (2007), points to the importance of the emergence or use of community leaders when she suggests that the emergence of a '*cooperative mindset*' is influenced by the attitudes of leaders towards cooperation and "*their capacity and willingness to craft within the organization a sense of mutuality and collegiality*" (Gratton, 2007, p.3). In Cloudworks this leadership role is most often played by experienced Cloudworks community members who can be seen to model professional, collegiate behaviours. Initially this was the Cloudworks team but increasingly a number of Cloudworks 'veterans' have emerged to play this role. Brown (2001) distinguishes between veterans and 'newbies' and agrees that veterans play an important role in offering support or advice, sharing their knowledge and experience, and encouraging their peers. However, once they feel they have 'done their duty' in relation to supporting the formation of the community and welcoming new members (i.e. newbies), they will tend to restrict their interaction to other veterans which can impact negatively on the community if it is not sufficiently established at that point.

So, we suggest that a cohesive community will:

- o use language and tone which is positive, polite, curious and respectful, and will display a willingness to listen and learn,

- o respond and take turns

- o develop or utilise a social structure where some more experienced participants will adopt a leadership role, where they model professional and collegiate behaviours

- o use humour, banter and playfulness

- o share ideas and experiences from safe to risky

Creative capability

Creative capability relates to how far the community is *motivated* and *able* to engage in collaborative and productive activity. This aspect of community is of particular importance to us in the development of a platform that aims to support open practices, and promote creative and reflective professional practice and development. This indicator relates to the alignment between the usability/functionality of the site in relation to participants' skills, personal qualities and experience, community and individual motivation to engage in the site, and the capacity of the emerging community to mediate between these aspects, and exploit the cultural, ethnic, social, and personal differences between participants within the community *(*Matel and Ball-Rokeach, 2001, p.553).

The participatory and productive practices, and creative and reflective professional development, that we seek to support on Cloudworks require broad and complex skills and abilities. Gratton argues that "*working across distances, working with people who are different from us, and working with people who are relative strangers.*" (Gratton, 2007, p. 3). is challenging and requires a complex skill set she calls *'productive capacity'*. Engeström's (2001) framework of Expansive Learning seems to offer a particularly powerful framework for capturing inter-related activity systems surrounding intellectual debates and dialogue. In order to fully participate in these new learning systems we must be able to, for example:

- o Develop an intellectual basis for criticising existing work practices and take responsibility for working with others to conceive, and implement where possible, alternatives.

- o Develop the capability of resituating existing knowledge and skill in new contexts as well as being able to contribute to the development of new knowledge, new social practices and new intellectual debates.

- o Become confident about crossing organisational boundaries or the boundaries between different, and often distributed, communities of practice.

- o Connect knowledge to the knowledge of other specialists, whether in educational institutions, workplaces or the wider community

(adapted from Griffiths and Guile, 2003, p.59)

Although writing from a different theoretical perspective, and with a focus on young people, Jenkins et al. (2006) begin to identify a new set of skills for participatory activity which seem of relevance to professional online learning groups. They argue that although participatory skills are built on a foundation of traditional academic skills such as literacy, research skills, technical skills, and critical analysis, they are not the same:

> "Participatory culture shifts the focus of literacy from one of individual expression to community involvement. The new literacies almost all involve social skills developed through collaboration and networking." (Jenkins et al., 2006, p. 4)

Frameworks for social learning often point to the importance of conflict, disagreement and negotiation in the process of collaborative knowledge creation and developing understanding (Kanuka and Anderson, 1998, pp.57-58) and there are clear links and tensions between this notion of social discord as a catalyst for knowledge construction and expansive learning (Engestrom, 2001), and the previous themes of participation, cohesion and identity. For example, there is a risk in an open and transient community that participants do not feel sufficiently secure to enter into disagreement, or that if they do, there are no established social or cultural processes or rules developed over time within the group that enable a conflict to have a positive outcome. And yet, we are also aware that as social and cultural boundaries around and within communities become more defined the diversity of the community is likely to be impacted, arguably resulting in less innovative and creative activity. We remain mindful of Fischer's (2002, p.4) distinction between the qualities and practices of homogenous and heterogeneous communities and the inability of closed communities to take full advantage of what he calls the '*symmetry of ignorance*'.

The JISC funded Emerge project which ran between 2007 and 2009 was an important precursor to the development of Cloudworks. The project sought to develop a sustainable CoP and used the *Users and Innovation Development model* which was developed from the experiences of the JISC Virtual Research Environments (VRE) programme[6] . Many of the paradoxes and tensions we observe in Cloudworks, and which see in the literature, were highlighted by a series of discussions and interviews conducted as part of the JISC-Emerge project. Roberts (2008) has attempted to account for and articulate these tensions in a blog post entitled '*Emerging criteria for community success*'. Roberts identifies eight seemingly paradoxical criteria: bounded openness; heterogeneous homophily; mutable stability; sustainable development; shared personal repertoires; structured freedom; multimodal identity; serious fun.

The following quotes are from people who tried Cloudworks but did not become engaged by it, and are indicative of the reasons people tell us that they fail to engage with the site. The first two statements are survey responses and the third comes from a blog posting (Cann, 2010):

> "So I suppose with anything like this you need to have a, either a bit of spare capacity, or its built into your sort of psyche that you do that sort of thing. I think on both counts I'm not there."

> "Unless I figure a way to readily navigate the site, I will not feel part of a community. Without feeling a part of a community, I am unlikely to add to it or eventually to even return to it."

> "I don't have a Cloudworks-shaped hole in my life. Not on an average day, and certainly not at a busy conference."

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[6] http://www.jisc.ac.uk/programme_vre.html

These statements highlight the importance of motivation in the development of online communities. Participants need to find participation purposeful, exciting, interesting, cognitively stimulating and engaging; it is this that will give communities and individuals the fuel and resilience to overcome the challenges and frustrations inherent in participatory activity. Gratton (2007) calls this 'igniting purpose' and identifies three forms which it can take:
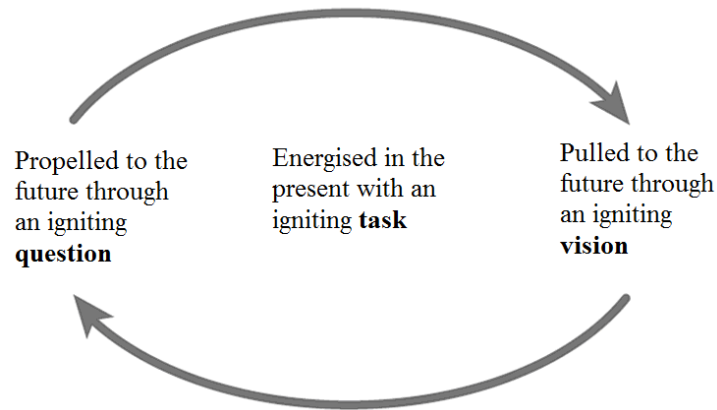

Propelled to the future through an igniting **question**

Energised in the present with an igniting **task**

Pulled to the future through an igniting **vision**

Fig 3: Forms igniting purpose can take (Gratton, 2007, p.13)

These three motivational aspects are evident in the statements users make about the reasons they do use the site. Again, the first three statements are survey responses and the final one comes from a blog posting (Clay, 2009):

> "I have found that what I need inspiration about is to be found at Cloudworks."

> "[*I enjoy*] just the sheer serendipity of finding/stumbling across interesting works."

> "One amazing strength of Cloudworks is the ability to network on a scale like this – to simply browse, find something interesting and start a conversation"

> "Cloudworks is really starting to grow on me as a collective tool. The resources on the VLE is Dead debate for example have made it much easier to direct people to the superb collection of blog articles on the subject"

To summarise, we argue that in order to be creative and productive a community must:

o demonstrate motivation and a powerful sense of purpose

o demonstrate personal and technical skill in relation to participating open discussion and debate, and collaborative production

o accommodate and celebrate differences in experience, knowledge and perspective

o encourage multiple points of view to be expressed and contradicted or challenged

o identify, refer to and develop the links and patterns between individuals' knowledge and experience

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The notion of 'community' is complex and nebulous, especially in relation to online, open and transient communities. The evidence suggests, that Cloudworks is one of the sites blurring formal and informal cultural and networked learning about being an educationalist, scholar, practitioner or indeed a student (in limited examples) with online interactions and experiences allowing roles to be learned, experiences to be shared, values to be exchanged and – to an extent – identities to be performed and (re)shaped, and communities to gather. This paper attempts to define the sort of community, and community activity, we would hope to support in the Cloudworks space, and introduces a framework which we believe offers a structure for observing the development of community, helps us analyse new and emerging open-participatory practices and may help us develop insights into future design needs. The framework has been used successfully as the basis for undertaking a series of case study evaluations (Galley et al, 2010 and Alevizou et al. 2010b), and work to validate the framework will continue. Although the framework has been developed in the context of Cloudworks, we believe it may transfer to support the observation and evaluation of other platforms. The CIF is strongly informed by both empirical evidence and a wealth of literature from a broad range of disciplines interested in participatory cultures and practices, and professional learning and development communities. Table 2 below summarises the CIF and maps the indicators to illustrative evaluation questions and observation criteria.

Finally, we believe the CIF may also prove effective as a framework for supporting and guiding developing communities as it expresses the tensions and challenges which can emerge as communities evolve. A critical approach to these tensions and challenges may help to manage and limit risk to the community as people debate, discuss and work to create new knowledge together openly and online. For example a community may reflect on its progression and development using a series of facilitative prompts, activities and tasks informed by the CIF. We will continue to explore the effectiveness of the framework for this use. Table 4 identifies a series of facilitative interventions that are suggested by the research underpinning the CIF. These may also be used to provide a framework for professional development for practitioners engaged in the facilitation of online learning communities.

Table 3: Summary of indicators with example evaluation questions and observation criteria

	Participation	Identity	Cohesion	Creative capability
Indicators	o Interwoven work and play o Emerging social and facilitative role structure o Patterns of core group activity that include pockets of wider rapid and energised engagement o Sustained engagement	o Established limits, boundaries purpose and expectations o Group self-awareness o A shared vocabulary o Identification of existing knowledge and experience links and patterns	o Support and tolerance o Turn taking and response o Emerging leadership hierarchy o Humour, banter and playfulness o Shared resources, ideas and experiences	o Motivated and driven by a powerful sense purpose o Sufficient personal and technical skill o Accommodates and celebrates difference o Multiple points of view are expressed and contradicted or challenged o Creation of new knowledge and experience links and patterns
Evaluation questions and observation criteria	**Interwoven work and play:** Are there examples of social, playful interaction alongside - or woven through - productive 'on-task' activity? (Wittel, 2001). Are there more social interactions than informational or productive interactions? (Kanuka and Anderson, 1998) **Social and facilitative role activity:** Do any participants take on a social or facilitative role? Are these effective in promoting and supporting collaborative activity? (Herring, 1994) **Commitment from a core group of participants:** Is there a core group of participants, who contribute regularly? How far do a core group of participants encourage the engagement and activity of others? **Pockets of wider rapid and energised engagement:** Are there any areas of significantly higher activity indicating flashpoints of interest and engagement (Gratton, 2001) **Sustained engagement:** How far do participants make repeated contributions over time? Has the community purpose or task been completed? NB Ideas may be extended, developed or collated in other spaces too i.e. the wider Cloudworks space, Twitter, blog.	**Limits, boundaries, purpose and expectations:** Do visitors understand the purpose of what they are doing? Do they feel drawn to participate and get involved? **Group self awareness:** When asked, do participants say that they feel part of a community? Do they use "us verses them" language? Particularly in statements such as, "We do things this way here" (implying an awareness that they might be done differently elsewhere) **Shared language and vocabulary:** Do participants use 'consistent and distinctive language practices' (Baym 2003, p1016) Is a similar tone and style used? Is the style and tone used inclusive or exclusive of other groups? **Identification of existing knowledge and experience links and patterns:** Do participants attempt to connect their existing knowledge and experience to that of others?	**Support and tolerance:** Are participants positive, polite and friendly to others? Is there evidence of a willingness to listen and learn from others? Are less confident participants encouraged to participate further? Can this kind of behaviour be seen to impact on the behaviours of new participants or non-participants (lurkers)? **Turn taking and response:** Do participants take turns in discussions and respond to each others' comments? Do participants ask or answer questions of others? **Leadership:** Do more experienced community participants support and encourage the participation of others? Adduced through participation patterns and speech analysis (e.g., Herring & Nix, 1997, which considers the different acts performed by group leaders and non-leaders). **Humour, banter and playfulness:** Do participants use humour and banter? (Baym, 1995) Can shared humour and banter be seen to encourage engagement and activity? For example, is humour used as a mechanism for introducing complex or controversial ideas or themes? **Shared ideas and experiences:** Do participants share ideas and experiences? To what degree are the things people share 'safe', for example links or literature references, or 'risky' i.e. professional mistakes which have lead to learning	**Motivated and driven by a powerful sense purpose:** When asked, do participants say that they found participating exciting, interesting and relevant to them? Do participants feel compelled to return to the space and participate? **Sufficient personal and technical skill:** Do enough of the group appear to have sufficient technical knowledge and skill to support others in collaborative production? Do individuals say that they have enough support from within or from outside the community? Do enough of the group have the personal skill required support participation in open discussion and debate? i.e. Are conflicts and disagreements managed well? **Accommodates and celebrates difference:** Are the differences between people in relation to experience, knowledge and perspective commented on in a positive way? Are alternative perspectives used by individuals to review their own beliefs and assumptions? **Multiple points of view are expressed and contradicted or challenged:** Are multiple points of view expressed? Do people from different types of roles and workplaces contribute? **Creation of knowledge and experience links and patterns:** Are links made between concepts and ideas? Do participants challenge existing knowledge and practices and work with others to conceive alternatives?

	Participation	Identity	Cohesion	Creative capability
Creating a supportive environment	o Ensure newcomers are individually welcomed o Set up a short social activity before moving onto 'working' activities o Assign social and facilitative roles until roles emerge naturally o Encourage participants to expand on interesting points and ask questions o Recognise and reward contributions o Share and disseminate information into and from other networks (i.e. Twitter, blogs, community websites etc) o Identify and model expected behaviours o Facilitate activity until activity is self-sustaining o Expect a higher ratio of social interactions to informational or productive ones	o Identify and express limits, boundaries, and purpose of the group o Provide opportunities for people to share existing practice, knowledge and experience before moving on to developing new ones o Encourage individuals and groups to express their identity in a variety of ways o Set an individual exploration task which is then shared / compared with the group Refer to the group as a group o Acknowledge and make links between the knowledge and experience of participants	o Use language which is inclusive and clear o Use a warm, friendly, open and polite tone o Ask people to outline what they want to get out of the community o Make expectations around mutuality and collegiality explicit o Get people to share something of interest (from safe to risky as the community develops i.e. from links and resources to practice and experience) o	o Establish objectives and purpose and communicate this clearly o Negotiate a future o Ask a stimulating or controversial question o Set an engaging task o Share a vision o Invite contradictory points of view o Provide participants with opportunities to develop their skills and the support they need to do so o Provide an abundance of rich resources (video, images, academic references, links) o Explore dissonance or inconsistency

Table 4: Facilitative interventions for community development

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